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CLAIMS

[Claim(s)]

[Claim 1]A displaying means arranged in turn that a character character which is meaningful, respectively, and which can be displayed is specific, [two or more] A setting-out means to set up the display style concerned displayed on the above-mentioned displaying means out of two or more display styles, A display control means on which two or more character characters corresponding to a display style set [above-mentioned] up are chosen as, and are displayed out of the above-mentioned character string, A character character which possessed and were arranged in the above-mentioned specific order, In a case where a character character corresponding to the 2nd predetermined display style is displayed by a case where a character character corresponding to the 1st predetermined display style is displayed by the above-mentioned display control means, and the above-mentioned display control means, A display arranging so that it may be used a part of character character's making it serve a double purpose.

[Claim 2]The display according to claim 1, wherein a character character by which multiple arrays were carried out in the above-mentioned specific turn is "SMSCF" showing a kind of "YMDMY" or a recording medium showing a display style of the date.

[Claim 3]A printer comprising:

A displaying means arranged in specific turn so that a meaningful character string could be displayed by using it, a part of character character which can be displayed, and which is meaningful, respectively making it serve a double purpose. [two or more]

A detection means to detect a kind of recording medium with which it was loaded, or a set-up display style of the date.

A selecting means which chooses a display style about a date set up in order to display on a kind or the above-mentioned displaying means of a recording medium displayed on the above-mentioned displaying means.

A display control means on which two or more character characters corresponding to a selected display style are displayed.

[Claim 4]The printer according to claim 3 which the above-mentioned character character is a character character about the date, and is characterized by the above-mentioned printer printing the date in order of the date corresponding to the above-mentioned character string with a picture at the time of a print.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the printer which uses the display used for the control panel of electronic equipment, etc., and it, especially when switching and displaying two or more display styles, it relates to the printer which uses the display and it which can respond, without using an excessive display member.

[0002]

[Description of the Prior Art]Conventionally, in a camera, a printer, etc., the small liquid crystal panel is used as a display for the data in which condition of use (control state) is shown, a date, etc. copying, and displaying lump data.

[0003]"A segment display" which displays a pattern in the combination of some liquid crystal patterns (segment), "matrix table Shimesu" who chooses the necessary part of the point (pixel) which has arranged in the shape of a lattice, and displays a pattern, etc. are used for control of the display which displays a character, a picture, etc. on a small liquid crystal panel.

[0004]The above-mentioned segment display controls lighting / astigmatism light to each liquid crystal pattern (segment) of every. 7 segment (it is also called number segment) display can arrange seven liquid crystal patterns to the type of 8, and the number to 0-9 can be expressed with carrying out light control for every segment.

[0005]For the patent No. 2867989, by the number segment of 6 figures, by the way, upper 2 figure, In [perform a year display, a month indication, or a Japanese display at a time by double figures each (double figures and lower 2 figure) inside, and] the data display device for cameras which can be changed in order of the order of a date, days-and-months ****, or a lunisolar year the display order of this year display, a month indication, and a Japanese display, Sign segments, such as an apostrophe-shaped segment, are provided and the data display device for cameras which distinguished the display order is indicated.

[0006]

[Problem(s) to be Solved by the Invention]like the above, the patent No. 2867989 makes the double figures number segment of 6 figures serve a double purpose at a time -- a year display -- or -- Although the month indication or the Japanese display is performed, if there are no segments, such as apostrophe shape, the above-mentioned year display, a month indication, or a Japanese display is undistinguishable. Therefore, the part which the members forming for it is required for it, or it displays must be secured, and there are cost increase Kuwae and a problem to enlarge.

[0007]Then, an object of this invention is to provide the printer which uses the display and it which are easy composition and can tell a user about an established state (control state) certainly at a glance without taking a display place in view of the above-mentioned problem in a segment display.

[0008]

[Means for Solving the Problem]A displaying means arranged in turn that a character character in which a display by invention of claim 1 is meaningful, respectively, and which can be displayed is specific, [two or more] A setting-out means to set up the display style concerned displayed on the above-mentioned displaying means out of two or more display styles, A display control means on which two or more character characters corresponding to a display style set [above-mentioned] up are chosen as, and are displayed out of the above-mentioned character string, A character character which possessed and were arranged in the above-mentioned specific order, In a case where a character character corresponding to the 2nd predetermined display style is displayed by a case where a character character corresponding to the 1st predetermined display style is displayed by the above-mentioned display control means, and the above-mentioned display control means, It is arranged so that it may be used a part of character character's making it serve a double purpose.

[0009]According to the invention of claim 1, the number of characters used by all the display styles can be lessened by making some characters serve a double purpose, even if it switches a display style by a setting-out means in a segment display etc., and there is an advantage with which there are few display places and they can be managed.

[0010]A character character in which the multiple arrays of the invention of claim 2 were carried out in the above-mentioned specific turn in the display according to claim 1 is characterized by being "SMSCF" showing a kind of "YMDMY" or a recording medium showing a display style of the date.

[0011]According to the invention of claim 2, a segment for five characters of "YMDMY" is prepared for expressing a display style of the date, If the light is switched on with "YMD", a display style of a "date" will be turned on with "MD Y" (a space portion is equivalent to a portion unswitched on the light) and a display style of a "days-and-months year" will be turned on with "DMY", the symbol display of the display style of a "lunisolar year" can be carried out, respectively. A display for nine characters can be performed in a segment for five characters.

[0012]Or a segment for five characters of "SMSCF" is prepared for expressing a kind of recording medium, If the light is switched on with "SM", "SmartMedia" will be turned on with "MS" and a "memory stick" will be turned on with "CF", the symbol display of "the CompactFlash (registered trademark)" can be carried out, respectively. A display for six characters can be performed in a segment for five characters.

[0013]A printer by invention of claim 3 is provided with the following.

A displaying means arranged in specific turn so that a meaningful character string could be displayed by using it, a part of character character which can be displayed, and which is meaningful, respectively making it serve a double purpose. [two or more]

A detection means to detect a kind of recording medium with which it was loaded, or a set-up display style of the date.

A selecting means which chooses a display style about a date set up in order to display on a kind or the above-mentioned displaying means of a recording medium displayed on the above-mentioned displaying means, and a display control means on which two or more character characters corresponding to a selected display style are displayed.

[0014]In [according to the invention of claim 3] a printer which can equip with various kinds of recording media, In a printer which can indicate the kind of recording medium which provides data which should be printed by a letter segment, or can switch a display style of the date, By making some [in each display] characters serve a double purpose, even if it switches a display style of a character string showing a display style or a date of a character string which expresses a medium kind by detection means and a selecting means when indicating the date data which should be printed by a letter segment. The number of characters used by all the display styles in each case can be lessened, and there is an advantage with which there are few display places and they can be managed.

[0015]It is a character character concerning [on the printer according to claim 3 and / the above-mentioned character character] the date in an invention of claim 4, and the above-mentioned printer also prints the date in order of the date corresponding to the above-mentioned character string with a picture at the time of a print.

[0016]According to the invention of claim 4, when the display style of a date at the time of a print is indicated by a character string with "YMD", a date, for example, "2000.4.30", or "2000-4-30" (mind on April 30, 2000) corresponding to "YMD" can be printed with a picture.

[0017]

[Embodiment of the Invention]An embodiment of the invention is described with reference to drawings. Before drawing 1 thru/or drawing 5 explain the important section of an embodiment of the invention, the printer to which this invention is applied with reference to drawing 6 and drawing 7 is explained.

[0018]Drawing 6 shows the appearance of the printer. In drawing 6, a printer The printer body 10 and the ink ribbon cassette 20, It has the sheet paper cassette 30 and the battery 40, is constituted, and is removable to the printer body 10 in the ink ribbon cassette 20, the sheet paper cassette 30, and the battery 40. SmartMedia (a trademark.) which memorized information, including the picture etc. which were photoed with the connector 51 for personal computers, the digital camera, etc., to the printer body 10 following SM -- describing -- a plug is possible for AC adapter 53 for connecting with two or more memory cards 52 which are archive media, such as CompactFlash (it is described as a trademark and following CF), and a commercial alternating current (AC) power supply, and obtaining direct-current (DC) voltage. Although drawing 6 shows the structure which carries out the insert and remove of SM and CF as the memory card 52, it is good also as insert and remove being possible as the 3rd recording medium in the memory stick for example, by Sony Corp. (it is described as a trade name and following MS).

[0019]In the cassette case (armor case) 21 in which the window part for ink ribbon disclosure was formed, where the ink ribbon 22 is wound between a feed reel and a machine reel, the ink ribbon cassette 20 is accommodated so that a transfer is possible.

[0020]The ink ribbon cassette 20 is inserted in the main part 10 from the aperture 12 which can mostly fit into the cassette side shape provided in the one side face of the printer body 10.

[0021]The thermal head mechanisms and the conveyer styles of a recording form which are not illustrated, those drive mechanisms, etc. are built into the inside of the chassis within the body casing 11 which forms the exterior by the printer body 10.

[0022]The opening 11a cut and lacked in approximately rectangular form is formed in the one side face of the body casing 11 of the printer body 10, and the above-mentioned aperture 12 is formed in it at said inside chassis currently allocated inside the opening 11a in the shape which carries out abbreviated checking and verifying to the side shape by the side of insertion of the ink ribbon cassette 20. And using the hinge 13a, the lid 13 for blockading said opening 11a (and said aperture 12) is attached to the body casing 11 so that opening and closing are possible.

[0023]The opening 14 for inserting the sheet paper cassette 30 is formed in the front end part (graphic display near side) of the printer body 10, and this opening 14 is equipped with the sheet paper cassette 30 by one-touch.

[0024]The battery applied part (not shown) is provided in the rear end part 15 of the printer body 10, and the battery 40 as a portable printer power supply can equip now by one-touch.

[0025]The liquid crystal display 16 as a displaying means which can display the information about a print on the upper surface of the body casing 11 at least, The indicator lamps 18a-18d which comprise LED (light emitting diode) etc. which perform the lighted indication concerning the manual operation buttons 17a-17i as a directing means which directs various kinds of commands about a print, and advance of print operation are allocated.

[0026]The power button 17a which directs powering on and power OFF in the manual operation buttons 17a-17i, The print button 17b which directs print operation, the printing mode button 17c which chooses a print mode (a standard print, an index print, all the top prints, DPOF), The sharpness button 17d which chooses sharpness (a standard, software, sharp), The division button 17e which chooses the number of partitions (division nothing, 2, 4 and 9, 16 screens) of split printing, The date button 17f which specifies the date printing and the date printing display gestalt, a memory card -- 52 -- a change -- carrying out -- a card -- a changeover button -- 17 -- g -- printing -- a top -- watch -- designated mode -- printing -- number of sheets (number of copied sheets) -- designated mode -- switching -- a top -- watch -- /-- printing -- number of sheets -- a changeover button -- 17 -- h -- a top -- watch -- or -- printing -- number of sheets -- a number -- fluctuating -- (-- + --) -- a button -- and -- (-) -- a button -- 17 -- i -- etc. -- it is .

[0027]Printing on the indicator lamps 18a-18d during the print which carries out a lighted indication The lamp 18a, the end of an ink ribbon, and sheet paper cassette nothing -- and -- carrying out record no paper -- etc. -- the ribbon / paper lamp 18b which carries out a lighted indication. The error lamp 18c which carries out the lighted indication of a ribbon cassette lid difference, the communication error, etc., There are inside of the data read (access) from the memory card 52, the access/charging lamp 18d etc. which carries out the lighted indication of start execution of the charge being carried out when power OFF by the power button 17a is performed, after the charging battery (not shown) and AC adapter 53 had connected.

[0028]The upper face part is carrying out the opening of the sheet paper cassette 30 as a paper attaching part, and The cassette case 31 which can accommodate a record paper, Leave a front end part (recording form output port), and the upper face part of this case 31 is constituted from the lid 32 which can be blockaded, The feed roller which is allocated by each side walls of the insertion side front end part of the cassette case 31 in the printer body 10 and which is not illustrated (to the tip end part of a recording form.) [contact and] The fitting parts 31a and 31a into which a part of pivot of the roller for leading a recording form in the printer body 10 in the rotation and frictional force can fit are formed, In the insertion side front end part 31b of the cassette case 31, the graphic display upper part is formed with the R (radius of circle) from the case interior side so that a recording form may be easy to be taken out with said feed roller from the inside of the cassette case 31.

[0029]The archive-medium stowage which stores two or more memory cards 52, such as above-mentioned SM, CF, etc., removable is established in the back side of a printer. An archive-medium stowage is located between the battery applied part in the rear end part 15 of the printer body 10, the above-mentioned manual operation button parts 17a-17i, and the liquid crystal display 16, and is provided with the structure which can insert and detach SM and CF to a sliding direction. The loading slot 61 for SmartMedia (SM) and the loading slot 62 for CompactFlash (CF) are established in the upper surface of this archive-medium stowage. The eject button 63 for taking out the inserted CompactFlash (CF) from the loading slot 62 is formed beside the loading slot 62 for CompactFlash (CF) so that **** is possible. Since what is necessary is to gather the rear end part (graphic display upper bed part) of SmartMedia (SM) with a finger to take out SmartMedia (SM) inserted in the loading slot 61 about SmartMedia (SM) and just to pull it out to take out, an ejecting means in particular is not needed. In order to make extraction of each media SM and CF easy, each loading slot 61 and the slant surface parts 68 and 69 sloping so that it might descend toward a loading slot from the both sides of the 62 circumference are formed around the loading slots 61 and 62.

[0030]When not inserting archive-medium SM and CF in these loading slots 61 and 62, in order to prevent the dust entry to the loading slots 61 and 62, the dust cover 64 is allocated so that opening and closing are possible. As opposed to each inner direction side engagement hole (not shown) of the two projected parts 65 and 65 which formed this covering 64 in the both-the-right-and-left-ends portion by the side of the back of the printer body 10, By making the two engaging projections 64a and 64a provided in the end part side of the covering 64 engaged, it is supported pivotable and may have comes to blockade the loading slots 61 and 62. The engaging pawl 64b protrudes on the opening-and-closing side end part of the covering 64, and this engaging pawl 64b is inserted into the engagement hole 66 established in the main part 10 side when the covering 64 is blockaded. From the state which closed the covering 64, when opening the covering 64, in order to make it easy to hang a finger on the covering opening-and-closing side end part, and to open, the notch (insert portion of a fingertip) 67 of concave shape is formed in the main part 10 side.

[0031]Drawing 7 shows all the printable characters and distinguishing marks which can be displayed on the above-mentioned liquid crystal display 16. The liquid crystal display 16 is constituted so that various kinds of characters, a number, and a mark may be displayed using a display segment.

[0032]Print mode specification is switched with the printing mode button 17c, and the mark of the index printing mode of the lower left corner of the display surface of drawing 7 is displayed from a standard printing mode by pushing this button 17c, If the button 17c is pushed once again, the mark of all the top printing modes with the 'ALL' mark of the right-hand will be displayed from an index print mode mark, If the button 17c is pushed once again, the mark in DPOF (Digital Print Order Format) mode will be displayed.

[0033]A standard printing mode is the mode which prints the specification top shown on top watch (FRAME), The mark is generated by carrying out non-light control of the square segment smeared away with the black of six pieces in the index print marks of the lower left corner of the display surface of drawing 7 (the mark of lower left corners, such as drawing 2 (a), is a standard print mode mark). An index printing mode is the mode which goes back from a specification top and prints a maximum of 30 tops to each one sheet. All the top printing modes are the modes which print only the parts for the remaining top that went back from the specification top. While DPOF mode is the format for recording specification information, including a picture, number of sheets, etc., to make a print on recording media, such as a memory card, out of the picture photoed with the digital camera and a user looks at the screen of a digital camera, Since a picture and number of sheets to print out of the photoed picture can be specified directly, Also when requesting print service, what is necessary is just to bring a recording medium, and it becomes unnecessary to fill in a file name, a top number, etc. of a picture to print on a requisition sheet, and it can reduce a user's time and effort.

[0034]Sharpness mode specification is the sharpness button 17d, and division mode specification is the division button 17e, The date specification and the date printing display gestalt change specification are the date buttons 17f, Memory card specification is the card changeover button 17g, and top watch / printing number-of-sheets specification is top watch / printing number-of-sheets changeover button 17h, and the display changes of top watch or printing number of sheets are the (+) button and the (-) button 17i, and can be switched if needed, respectively. File name specification which specifies the file number etc. which are recorded on SM etc. when a photograph is taken with a camera can be performed by the simultaneous aggressiveness of the date button 17f, and the top watch / printing number-of-sheets changeover button 17h.

[0035]Two kinds of cases are in the above printers to read the data to print into the buffer memory for image data in a printer (it is equivalent to the memory card 85 of drawing 1). It is a case where the data from the recording medium (SmartMedia SM, CompactFlash CF, or memory stick MS) of either of two or more memory cards 52 is read into the 1st, It is a case where connect with the interface (not shown) in the printer body 10 the connector 51 of the personal computer which is not illustrated, and the data from a personal computer is read into the 2nd. The case where access the recording medium of either of two or more memory cards 52, read a file in the following explanation, and the kind of recording medium under the access is displayed on the liquid crystal display 16 as a displaying means by a letter segment, Or it explains focusing on the method of presentation in the case of displaying the date display style at the time of performing the date printing on the liquid crystal display 16 by a letter segment.

[0036]In a printer, when the power button 17a is made one, to the liquid crystal display 16 which displays print information. Usually, FRAME '000' which shows the initial value of "NORMAL" which shows a sharpness standard, for example, standard print marks, and printing top watch as a display of an initial state, and a battery residual quantity mark are displayed. Supposing SmartMedia SM was inserted at the time of this power turn, a letter segment indication of the "SM" will be given as a memory card display. When SM, CF, and all the MSs are inserted at the time of a power turn, SM is accessed preferentially and "SM" is displayed. Priority is given to the card with which it is equipped previously, when inserting a memory card and being equipped with other memory cards in the state where the power turn is carried out. Therefore, the memory card which wants to push the card changeover button 17g and to access it is chosen to choose the memory card of hope.

[0037]If the above-mentioned manual operation buttons 17c-17i perform various setting out after power button 17a one and the print button 17b is pushed, only the set-up number of sheets can print out the image data of the top watch to which the set-up recording medium was set, for example.

[0038]Drawing 1 is a block diagram showing the printer to which the display of the 1 embodiment of this invention is applied.

[0039]When it equips with SM71, MS72, and CF73, the printer 80 shown in drawing 1, Composition required since the change of the memory card display displayed on the liquid crystal display 16 is performed at the same time SM->MS->CF and a memory card are switched by pushing the card changeover button 17g (refer to drawing 6) in the manual operation buttons 17a-17i of the printer 80 is shown. Or composition required since the date display change for switching the gestalt (a date, a days-and-months year, a lunisolar year) of the date display for copying the date data to the image data which is a printing object is performed is shown. The liquid crystal display 16 performs a battery residual quantity display, a printing top watch display, a printing number-of-sheets display, a print mode display, etc. besides the display of the kind of recording medium, and the display of the display style of the date in the usual displaying condition.

[0040]The printer 80 The SM interface 81 and the MS interface 82, The CF interface 83, CPU84, the memory 85, and the liquid crystal display 16, It has the liquid crystal controller 87, the manual operation buttons 17a-17i, the key interface 89, the print head 90, the printing controller 91, the battery 92, and the battery controller 93, and is constituted.

[0041]It connects with SM71, and the SM interface 81 as a means of communication delivers and receives the electronic data of SM71.

[0042]It connects with MS72, and the MS interface 82 as a means of communication delivers and receives the electronic data of MS72.

[0043]It connects with CF73, and the CF interface 83 as a means of communication delivers and receives the electronic data of CF73.

[0044]The kind of recording medium loaded with CPU84 as a control means, or the detection of the display style of the date by which the date printing establishment was carried out, The memory to the read in and the image memory 85 of printing target data from any one of SM, MS, and CF, The decipherment of the control data from a personal computer and the decipherment of the indicative data from the keyboard 86 which are not illustrated, The copy lump to the printing target data of the concrete date information according to the display to the liquid crystal display 16, the print of the print head 90, and the display style of the date which was residue-computed and the battery 92 detected, etc. are controlled.

[0045]Under control of CPU84, the memory 85 as a memory measure reads the data from data and the personal computers which are not illustrated from a recording medium, such as SM, MS, and CF, and is memorized.

[0046]The liquid crystal controller 87 as a display control means, It is what supplies a segment driving signal (a segment status signal and a segment control signal) to the above-mentioned liquid crystal display 16 under the control of CPU84 based on the directions from the manual operation buttons 17a-17i, The code signal from CPU84 is decoded and the above-mentioned liquid crystal display 16 is made to indicate the concrete character and number corresponding to an instruction content, and conversion to a mark and required number of letters by a segment.

[0047]The manual operation buttons 17a-17i have a function as a selecting means for changing the directing means or setting detail which performs various kinds of directions by a user as drawing 6 explained.

[0048]The key interface 89 is an interface which tells the indication signal from the manual operation buttons 17a-17i to CPU84.

[0049]The printing controller 91 supplies the signal for prints, and a print control signal to the print heads 90, such as a thermal head, under control of CPU84.

[0050]The battery controller 93 is a required thing which carries out an electric power supply and which gives both the residue information on the battery 92 to CPU84 from the battery 92 to CPU84.

[0051]About the above-mentioned liquid crystal display 16, the segment notation which displays a character and a number as shown in drawing 7, and a mark using a display segment is used. The liquid crystal controller 87 generates a segment driving signal based on the directions from CPU84, and controls lighting / un-switching on on the light of each display segment of the liquid crystal display 16.

[0052]Print operation is explained briefly here. To the display surface of the liquid crystal display 16, of the recording media with the state where card display SM is made, or the card changeover button 17g for example, where SM is chosen, If the print button 17b is pushed as a print mode with the printing mode button 17c after choosing a standard print and then specifying printing top watch and printing number of sheets, the date printing, etc. in order to perform printing from SM, After CPU84 reads data into the memory 85 from SM71, it sends this data to the printing controller 91, controls the print head 90, and goes into print operation.

Only the printing number of sheets as which the picture of the top watch specified as the record paper which is not illustrated at the time of a print was specified is printed out. If the date printing is specified at this time, the date at the time of a print will also be printed with a picture. The display which shows under printing to the liquid crystal display 16, and a battery residual quantity display are made during the print.

[0053]Next, the display action of the kind of recording medium in the liquid crystal display 16 of the printer 80 of drawing 1 is explained. A printer body is equipped with the battery 40, or AC adapter 53 is connected, current supply has become possible, it is equipped with the ink ribbon cassette 20 and the sheet paper cassette 30, and printing and feeding are enabled. Subsequent explanation is also the same.

[0054]In the printer 80 at the time of a power turn, various kinds of setting out of the liquid crystal display 16 will be in an initialization state.

[0055]When equipped with neither of the memory cards 71-73 at the time of a power turn, CPU84 detects this, and it is drawing 2 (a). A displaying condition as shown is used. Thus, when you have no memory card, a memory card display is not made.

[0056]When equipped with SM71 at the time of a power turn, CPU84 detects this and is drawing 2 (a). Drawing 2 (b) after displaying a state without the same memory card A file is read from SM71, the kind "SM" of card is indicated by a segment so that it may be shown, and the last top watch of the data saved simultaneously SM71 is displayed. Drawing 2 (a) Although the mark currently displayed on the lower left corner of the display surface shows standard print marks, this mark is generated by controlling six square segments (what it was black and was smeared away) in the index print marks of the lower left corner of the display surface of drawing 7 un-switching on the light.

[0057]When equipped with MS72 at the time of a power turn, CPU84 detects this and is drawing 2 (a). Drawing 2 (c) after displaying a state without the same memory card A file is read from MS72, the kind "MS" of card is indicated by a segment so that it may be shown, and the last top watch of the data saved simultaneously MS72 is displayed.

[0058]When equipped with CF73 at the time of a power turn, CPU84 detects this and is drawing 2 (a). After displaying a state without the same memory card, as shown in drawing 2 (d), a file is read from CF73, the kind "CF" of card is indicated by a segment, and the last top watch of the data saved simultaneously CF73 is displayed.

[0059]When SM, CF, and all the MSs are inserted at the time of a power turn, priority is given to SM, for example.

[0060]Next, when either of the memory cards 71-73 is inserted to the printer 80 after a power turn, CPU84 is controlled to detect the memory card with which it was equipped and to switch automatically the memory card display of the liquid crystal display 16. This is explained below.

[0061]Drawing 2 (a) If it equips with SM71 to a displaying condition without the same memory card, CPU84 detects this and is drawing 3 (a). After reading a file from the memory card with which it was equipped, indicating the kind "SM" of card by a segment so that it may be shown, and completing reading, the last top watch of the photography top currently recorded on the memory card with which it was equipped is also displayed.

[0062]Drawing 2 (a) If it equips with MS72 to a displaying condition without the same memory card, CPU84 detects this and is drawing 3 (b). After reading a file from the memory card with which it equipped, indicating the kind "MS" of card by a segment so that it may be shown, and completing reading, the last top watch of the photography top currently recorded on the memory card with which it was equipped is also displayed.

[0063]Drawing 2 (a) If it equips with CF73 to a displaying condition without the same memory card, CPU84 detects this and is drawing 3 (c). After reading a file from the memory card with which it equipped, indicating the kind "CF" of card by a segment so that it may be shown, and completing reading, the last top watch of the photography top currently recorded on the memory card with which it was equipped is also displayed.

[0064]When other cards are inserted at the time of memory card insertion, the card with which it is equipped previously is displayed preferentially. For this reason, the memory card used by pushing the card changeover button 17g can be chosen. CPU84 is controlled to switch the memory card display of the liquid crystal display 16 corresponding to the memory card which chose in order the memory card which detects this whenever the card changeover button 17g is pushed, and is used like SM->MS->CF, and was chosen simultaneously.

[0065]In simultaneous insertion of a memory card, it is controlled to display the memory card recognized first.

[0066]CPU84 is made into a displaying condition as detected this and shown in drawing 4 when the memory card in which the picture is not recorded is inserted. That is, although a card kind is displayed as "SM", corresponding to a memory card, even if a top watch display will be -000- and the print button 17b is operated here, CPU84 does not receive print instruction.

[0067]The segment for five characters of "SMSCF" is prepared for expressing the kind of memory card which is a recording medium, as drawing 2 - drawing 4 described above, If the light is switched on with "SM", "SmartMedia" will be turned on with "MS" and a "memory stick" will be turned on with "CF", the symbol display of the "CompactFlash" can be carried out, respectively. The display for six characters can be performed in the segment for five characters.

[0068]Next, the display action in the case of specifying the date display style at the time of a print is explained. At the initial state at the time of a power turn, it is drawing 5 (a). It is shown in a displaying condition without the date so that it may be shown. Then, the date button 17f is pushed and it is controlled to be able to choose the date display. It controls for CPU84 to detect this, whenever it pushes the date button 17f once, and to switch the display style of the date.

[0069]Drawing 5 (a) From a state without the date, if the date button 17f is pushed once, CPU84 detects this and is drawing 5 (b). The "YMD" (it is equivalent to a "date") which indicates the date printing display gestalt under it to be the date printing designation mark to the upper right on a display surface so that it may be shown is indicated by a segment, "MD Y" (equivalent to a "days-and-months year".) CPU84 indicates the date printing display gestalt to be to the bottom of it with the date printing designation mark as shown in drawing 5 (c) when the date button 17f is pushed once again a space portion -- the portion unswitched on the light -- it is -- if it indicates by a segment and the date button 17f is pushed further once again -- CPU84 -- drawing 5 (d) The "DMY" (it is equivalent to a "lunisolar year") which shows the date printing display gestalt to the bottom of it with the date printing designation mark so that it may be shown is indicated by a segment.

[0070]As drawing 5 described above, the segment for five characters of "YMDMY" is prepared for expressing the display style of the date, If the light is switched on with "YMD", the display style of a "date" will be turned on with "MD Y" and the display style of a "days-and-months year" will be turned on with "DMY", the symbol display of the display style of a "lunisolar year" can be carried out, respectively. The display for nine characters can be performed in the segment for five characters.

[0071]When the display style of the date at the time of a print is indicated by a character string with "MD Y" at the time of a print, The date, for example, "4.30.2000", or "4-30-2000" (mind on April 30, 2000) corresponding to "MD Y" can be printed with a picture on a print sheet.

[0072]In an above embodiment, although the display in a printer was explained, this invention can be widely applied to the display which performs a segment display, without being limited to this.

[0073]

[Effect of the Invention]As stated above, according to this invention, the display which can tell a user about an established state (control state) certainly at a glance, and the printer using it can be provided with easy composition by making a meaningful letter segment serve a double purpose, without taking a display place.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention]This invention relates to the printer which uses the display used for the control panel of electronic equipment, etc., and it, especially when switching and displaying two or more display styles, it relates to the printer which uses the display and it which can respond, without using an excessive display member.

[Translation done.]

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PRIOR ART

[Description of the Prior Art]Conventionally, in a camera, a printer, etc., the small liquid crystal panel is used as a display for the data in which condition of use (control state) is shown, a date, etc. copying, and displaying lump data.

[0003]"A segment display" which displays a pattern in the combination of some liquid crystal patterns (segment), "matrix table Shimesu" who chooses the necessary part of the point (pixel) which has arranged in the shape of a lattice, and displays a pattern, etc. are used for control of the display which displays a character, a picture, etc. on a small liquid crystal panel.

[0004]The above-mentioned segment display controls lighting / astigmatism light to each liquid crystal pattern (segment) of every. 7 segment (it is also called number segment) display can arrange seven liquid crystal patterns to the type of 8, and the number to 0-9 can be expressed with carrying out light control for every segment.

[0005]For the patent No. 2867989, by the number segment of 6 figures, by the way, upper 2 figure, In [perform a year display, a month indication, or a Japanese display at a time by double figures each (double figures and lower 2 figure) inside, and] the data display device for cameras which can be changed in order of the order of a date, days-and-months ****, or a lunisolar year the display order of this year display, a month indication, and a Japanese display, Sign segments, such as an apostrophe-shaped segment, are provided and the data display device for cameras which distinguished the display order is indicated.

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EFFECT OF THE INVENTION

[Effect of the Invention]As stated above, according to this invention, the display which can tell a user about an established state (control state) certainly at a glance, and the printer using it can be provided with easy composition by making a meaningful letter segment serve a double purpose, without taking a display place.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]like the above, the patent No. 2867989 makes the double figures number segment of 6 figures serve a double purpose at a time -- a year display -- or -- Although the month indication or the Japanese display is performed, if there are no segments, such as apostrophe shape, the above-mentioned year display, a month indication, or a Japanese display is undistinguishable. Therefore, the part which the members forming for it is required for it, or it displays must be secured, and there are cost increase Kuwae and a problem to enlarge.

[0007]Then, an object of this invention is to provide the printer which uses the display and it which are easy composition and can tell a user about an established state (control state) certainly at a glance without taking a display place in view of the above-mentioned problem in a segment display.

[Translation done.]

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MEANS

[Means for Solving the Problem]A displaying means arranged in turn that a character character in which a display by invention of claim 1 is meaningful, respectively, and which can be displayed is specific, [two or more] A setting-out means to set up the display style concerned displayed on the above-mentioned displaying means out of two or more display styles, A display control means on which two or more character characters corresponding to a display style set [above-mentioned] up are chosen as, and are displayed out of the above-mentioned character string, A character character which possessed and were arranged in the above-mentioned specific order, In a case where a character character corresponding to the 2nd predetermined display style is displayed by a case where a character character corresponding to the 1st predetermined display style is displayed by the above-mentioned display control means, and the above-mentioned display control means, It is arranged so that it may be used a part of character character's making it serve a double purpose.
[0009]According to the invention of claim 1, the number of characters used by all the display styles can be lessened by making some characters serve a double purpose, even if it switches a display style by a setting-out means in a segment display etc., and there is an advantage with which there are few display places and they can be managed.
[0010]A character character in which the multiple arrays of the invention of claim 2 were carried out in the above-mentioned specific turn in the display according to claim 1 is characterized by being "SMSCF" showing a kind of "YMDMY" or a recording medium showing a display style of the date.
[0011]According to the invention of claim 2, a segment for five characters of "YMDMY" is prepared for expressing a display style of the date, If the light is switched on with "YMD", a display style of a "date" will be turned on with "MD Y" (a space portion is equivalent to a portion unswitched on the light) and a display style of a "days-and-months year" will be turned on with "DMY", the symbol display of the display style of a "lunisolar year" can be carried out,

respectively. A display for nine characters can be performed in a segment for five characters.

[0012]Or a segment for five characters of "SMSCF" is prepared for expressing a kind of recording medium, If the light is switched on with "SM", "SmartMedia" will be turned on with "MS" and a "memory stick" will be turned on with "CF", the symbol display of "the CompactFlash (registered trademark)" can be carried out, respectively. A display for six characters can be performed in a segment for five characters.

[0013]A printer by invention of claim 3 is provided with the following.

A displaying means arranged in specific turn so that a meaningful character string could be displayed by using it, a part of character character which can be displayed, and which is meaningful, respectively making it serve a double purpose. [two or more]

A detection means to detect a kind of recording medium with which it was loaded, or a set-up display style of the date.

A selecting means which chooses a display style about a date set up in order to display on a kind or the above-mentioned displaying means of a recording medium displayed on the above-mentioned displaying means, and a display control means on which two or more character characters corresponding to a selected display style are displayed.

[0014]In [according to the invention of claim 3] a printer which can equip with various kinds of recording media, In a printer which can indicate the kind of recording medium which provides data which should be printed by a letter segment, or can switch a display style of the date, By making some [in each display] characters serve a double purpose, even if it switches a display style of a character string showing a display style or a date of a character string which expresses a medium kind by detection means and a selecting means when indicating the date data which should be printed by a letter segment. The number of characters used by all the display styles in each case can be lessened, and there is an advantage with which there are few display places and they can be managed.

[0015]It is a character character concerning [on the printer according to claim 3 and / the above-mentioned character character] the date in an invention of claim 4, and the above-mentioned printer also prints the date in order of the date corresponding to the above-mentioned character string with a picture at the time of a print.

[0016]According to the invention of claim 4, when the display style of a date at the time of a print is indicated by a character string with "YMD", a date, for example, "2000.4.30", or "2000-4-30" (mind on April 30, 2000) corresponding to "YMD" can be printed with a picture.

[0017]

[Embodiment of the Invention]An embodiment of the invention is described with reference to drawings. Before drawing 1 thru/or drawing 5 explain the important section of an embodiment of the invention, the printer to which this invention is applied with reference to drawing 6 and drawing 7 is explained.

[0018]Drawing 6 shows the appearance of the printer. In drawing 6, a printer The printer body 10 and the ink ribbon cassette 20, It has the sheet paper cassette 30 and the battery 40, is constituted, and is removable to the printer body 10 in the ink ribbon cassette 20, the sheet paper cassette 30, and the battery 40. SmartMedia (a trademark.) which memorized information, including the picture etc. which were photoed with the connector 51 for personal computers, the digital camera, etc., to the printer body 10 following SM -- describing -- a plug is possible for AC adapter 53 for connecting with two or more memory cards 52 which are archive media, such as CompactFlash (it is described as a trademark and following CF), and a commercial alternating current (AC) power supply, and obtaining direct-current (DC) voltage. Although drawing 6 shows the structure which carries out the insert and remove of SM and CF as the memory card 52, it is good also as insert and remove being possible as the 3rd recording medium in the memory stick for example, by Sony Corp. (it is described as a trade name and following MS).

[0019]In the cassette case (armor case) 21 in which the window part for ink ribbon disclosure was formed, where the ink ribbon 22 is wound between a feed reel and a machine reel, the ink ribbon cassette 20 is accommodated so that a transfer is possible.

[0020]The ink ribbon cassette 20 is inserted in the main part 10 from the aperture 12 which can mostly fit into the cassette side shape provided in the one side face of the printer body 10.

[0021]The thermal head mechanisms and the conveyer styles of a recording form which are not illustrated, those drive mechanisms, etc. are built into the inside of the chassis within the body casing 11 which forms the exterior by the printer body 10.

[0022]The opening 11a cut and lacked in approximately rectangular form is formed in the one side face of the body casing 11 of the printer body 10, and the above-mentioned aperture 12 is formed in it at said inside chassis currently allocated inside the opening 11a in the shape which carries out abbreviated checking and verifying to the side shape by the side of insertion of the ink ribbon cassette 20. And using the hinge 13a, the lid 13 for blockading said opening 11a (and said aperture 12) is attached to the body casing 11 so that opening and closing are possible.

[0023]The opening 14 for inserting the sheet paper cassette 30 is formed in the front end part (graphic display near side) of the printer body 10, and this opening 14 is equipped with the sheet paper cassette 30 by one-touch.

[0024]The battery applied part (not shown) is provided in the rear end part 15 of the printer body 10, and the battery 40 as a portable printer power supply can equip now by one-touch.

[0025]The liquid crystal display 16 as a displaying means which can display the information about a print on the upper surface of the body casing 11 at least, The indicator lamps 18a-18d which comprise LED (light emitting diode) etc. which perform the lighted indication concerning the manual operation buttons 17a-17i as a directing means which directs various kinds of commands about a print, and advance of print operation are allocated.

[0026]The power button 17a which directs powering on and power OFF in the manual operation buttons 17a-17i, The print button 17b which directs print operation, the printing mode button 17c which chooses a print mode (a standard print, an index print, all the top prints, DPOF), The sharpness button 17d which chooses sharpness (a standard, software, sharp), The division button 17e which chooses the number of partitions (division nothing, 2, 4 and 9, 16 screens) of split printing, The date button 17f which specifies the date printing and the date printing display gestalt, a memory card -- 52 -- a change -- carrying out -- a card -- a changeover button -- 17 -- g -- printing -- a top -- watch -- designated mode -- printing -- number of sheets (number of copied sheets) -- designated mode -- switching -- a top -- watch -- /-- printing -- number of sheets -- a changeover button -- 17 -- h -- a top -- watch -- or -- printing -- number of sheets -- a number -- fluctuating -- (-- + --) -- a button -- and -- (-) -- a button -- 17 -- i -- etc. -- it is .

[0027]Printing on the indicator lamps 18a-18d during the print which carries out a lighted indication The lamp 18a, the end of an ink ribbon, and sheet paper cassette nothing -- and -- carrying out record no paper -- etc. -- the ribbon / paper lamp 18b which carries out a lighted indication. The error lamp 18c which carries out the lighted indication of a ribbon cassette lid difference, the communication error, etc., There are inside of the data read (access) from the memory card 52, the access/charging lamp 18d etc. which carries out the lighted indication of start execution of the charge being carried out when power OFF by the power button 17a is performed, after the charging battery (not shown) and AC adapter 53 had connected.

[0028]The upper face part is carrying out the opening of the sheet paper cassette 30 as a paper attaching part, and The cassette case 31 which can accommodate a record paper, Leave a front end part (recording form output port), and the upper face part of this case 31 is constituted from the lid 32 which can be blockaded, The feed roller which is allocated by each side walls of the insertion side front end part of the cassette case 31 in the printer body 10 and which is not illustrated (to the tip end part of a recording form.) [contact and] The fitting parts 31a and 31a into which a part of pivot of the roller for leading a recording form in the printer body 10 in the rotation and frictional force can fit are formed, In the insertion side front end part 31b of the cassette case 31, the graphic display upper part is formed with the R (radius of circle) from the case interior side so that a recording form may be easy to be taken out with said feed roller from the inside of the cassette case 31.

[0029]The archive-medium stowage which stores two or more memory cards 52, such as above-mentioned SM, CF, etc., removable is established in the back side of a printer. An archive-medium stowage is located between the battery applied part in the rear end part 15 of the printer body 10, the above-mentioned manual operation button parts 17a-17i, and the liquid crystal display 16, and is provided with the structure which can insert and detach SM and CF to a sliding direction. The loading slot 61 for SmartMedia (SM) and the loading slot 62 for CompactFlash (CF) are established in the upper surface of this archive-medium stowage. The eject button 63 for taking out the inserted CompactFlash (CF) from the loading slot 62 is formed beside the loading slot 62 for CompactFlash (CF) so that **** is possible. Since what is necessary is to gather the rear end part (graphic display upper bed part) of SmartMedia (SM) with a finger to take out SmartMedia (SM) inserted in the loading slot 61 about SmartMedia (SM) and just to pull it out to take out, an ejecting means in particular is not needed. In order to make extraction of each media SM and CF easy, each loading slot 61 and the slant surface parts 68 and 69 sloping so that it might descend toward a loading slot from the both sides of the 62 circumference are formed around the loading slots 61 and 62.

[0030]When not inserting archive-medium SM and CF in these loading slots 61 and 62, in order to prevent the dust entry to the loading slots 61 and 62, the dust cover 64 is allocated so that opening and closing are possible. As opposed to each inner direction side engagement hole (not shown) of the two projected parts 65 and 65 which formed this covering 64 in the both-the-right-and-left-ends portion by the side of the back of the printer body 10, By making the two engaging projections 64a and 64a provided in the end part side of the covering 64 engaged, it is supported pivotable and may have comes to blockade the loading slots 61 and 62. The engaging pawl 64b protrudes on the opening-and-closing side end part of the covering 64, and this engaging pawl 64b is inserted into the engagement hole 66 established in the main part 10 side when the covering 64 is blockaded. From the state which closed the covering 64, when opening the covering 64, in order to make it easy to hang a finger on the covering opening-and-closing side end part, and to open, the notch (insert portion of a fingertip) 67 of concave shape is formed in the main part 10 side.

[0031]Drawing 7 shows all the printable characters and distinguishing marks which can be displayed on the above-mentioned liquid crystal display 16. The liquid crystal display 16 is constituted so that various kinds of characters, a number, and a mark may be displayed using a display segment.

[0032]Print mode specification is switched with the printing mode button 17c, and the mark of the index printing mode of the lower left corner of the display surface of drawing 7 is displayed from a standard printing mode by pushing this button 17c, If the button 17c is pushed once again, the mark of all the top printing modes with the 'ALL' mark of the right-hand will be displayed from an index print mode mark, If the button 17c is pushed once again, the mark in DPOF (Digital Print Order Format) mode will be displayed.

[0033]A standard printing mode is the mode which prints the specification top shown on top watch (FRAME), The mark is generated by carrying out non-light control of the square segment smeared away with the black of six pieces in the index print marks of the lower left corner of the display surface of drawing 7 (the mark of lower left corners, such as drawing 2 (a), is a standard print mode mark). An index printing mode is the mode which goes back from a specification top and prints a maximum of 30 tops to each one sheet. All the top printing modes are the modes which print only the parts for the remaining top that went back from the specification top. While DPOF mode is the format for recording specification information, including a picture, number of sheets, etc., to make a print on recording media, such as a memory card, out of the picture photoed with the digital camera and a user looks at the screen of a digital camera, Since a picture and number of sheets to print out of the photoed picture can be specified directly, Also when requesting print service, what is necessary is just to bring a recording medium, and it becomes unnecessary to fill in a file name, a top number, etc. of a picture to print on a requisition sheet, and it can reduce a user's time and effort.

[0034]Sharpness mode specification is the sharpness button 17d, and division mode specification is the division button 17e, The date specification and the date printing display gestalt change specification are the date buttons 17f, Memory card specification is the card changeover button 17g, and top watch / printing number-of-sheets specification is top watch / printing number-of-sheets changeover button 17h, and the display changes of top watch or printing number of sheets are the (+) button and the (-) button 17i, and can be switched if needed, respectively. File name specification which specifies the file number etc. which are recorded on SM etc. when a photograph is taken with a camera can be performed by the simultaneous aggressiveness of the date button 17f, and the top watch / printing number-of-sheets changeover button 17h.

[0035]Two kinds of cases are in the above printers to read the data to print into the buffer memory for image data in a printer (it is equivalent to the memory card 85 of drawing 1). It is a case where the data from the recording medium (SmartMedia SM, CompactFlash CF, or memory stick MS) of either of two or more memory cards 52 is read into the 1st, It is a case where connect with the interface (not shown) in the printer body 10 the connector 51 of the personal computer which is not illustrated, and the data from a personal computer is read into the 2nd. The case where access the recording medium of either of two or more memory cards 52, read a file in the following explanation, and the kind of recording medium under the access is displayed on the liquid crystal display 16 as a displaying means by a letter segment, Or it explains focusing on the method of presentation in the case of displaying the date display style at the time of performing the date printing on the liquid crystal display 16 by a letter segment.

[0036]In a printer, when the power button 17a is made one, to the liquid crystal display 16 which displays print information. Usually, FRAME '000' which shows the initial value of "NORMAL" which shows a sharpness standard, for example, standard print marks, and printing top watch as a display of an initial state, and a battery residual quantity mark are displayed. Supposing SmartMedia SM was inserted at the time of this power turn, a letter segment indication of the "SM" will be given as a memory card display. When SM, CF, and all the MSs are inserted at the time of a power turn, SM is accessed preferentially and "SM" is displayed. Priority is given to the card with which it is equipped previously, when inserting a memory card and being equipped with other memory cards in the state where the power turn is carried out. Therefore, the memory card which wants to push the card changeover button 17g and to access it is chosen to choose the memory card of hope.

[0037]If the above-mentioned manual operation buttons 17c-17i perform various setting out after power button 17a one and the print button 17b is pushed, only the set-up number of sheets can print out the image data of the top watch to which the set-up recording medium was set, for example.

[0038]Drawing 1 is a block diagram showing the printer to which the display of the 1 embodiment of this invention is applied.

[0039]When it equips with SM71, MS72, and CF73, the printer 80 shown in drawing 1, Composition required since the change of the memory card display displayed on the liquid crystal display 16 is performed at the same time SM->MS->CF and a memory card are switched by pushing the card changeover button 17g (refer to drawing 6) in the manual operation buttons 17a-17i of the printer 80 is shown. Or composition required since the date display change for switching the gestalt (a date, a days-and-months year, a lunisolar year) of the date display for copying the date data to the image data which is a printing object is performed is shown. The liquid crystal display 16 performs a battery residual quantity display, a printing top watch display, a printing number-of-sheets display, a print mode display, etc. besides the display of the kind of recording medium, and the display of the display style of the date in the usual displaying condition.

[0040]The printer 80 The SM interface 81 and the MS interface 82, The CF interface 83, CPU84, the memory 85, and the liquid crystal display 16, It has the liquid crystal controller 87, the manual operation buttons 17a-17i, the key interface 89, the print head 90, the printing controller 91, the battery 92, and the battery controller 93, and is constituted.

[0041]It connects with SM71, and the SM interface 81 as a means of communication delivers and receives the electronic data of SM71.

[0042]It connects with MS72, and the MS interface 82 as a means of communication delivers and receives the electronic data of MS72.

[0043]It connects with CF73, and the CF interface 83 as a means of communication delivers and receives the electronic data of CF73.

[0044]The kind of recording medium loaded with CPU84 as a control means, or the detection of the display style of the date by which the date printing establishment was carried out, The memory to the read in and the image memory 85 of printing target data from any one of SM, MS, and CF, The decipherment of the control data from a personal computer and the decipherment of the indicative data from the keyboard 86 which are not illustrated, The copy lump to the printing target data of the concrete date information according to the display to the liquid crystal display 16, the print of the print head 90, and the display style of the date which was residue-computed and the battery 92 detected, etc. are controlled.

[0045]Under control of CPU84, the memory 85 as a memory measure reads the data from data and the personal computers which are not illustrated from a recording medium, such as SM, MS, and CF, and is memorized.

[0046]The liquid crystal controller 87 as a display control means, It is what supplies a segment driving signal (a segment status signal and a segment control signal) to the above-mentioned liquid crystal display 16 under the control of CPU84 based on the directions from the manual operation buttons 17a-17i, The code signal from CPU84 is decoded and the above-mentioned liquid crystal display 16 is made to indicate the concrete character and number corresponding to an instruction content, and conversion to a mark and required number of letters by a segment.

[0047]The manual operation buttons 17a-17i have a function as a selecting means for changing the directing means or setting detail which performs various kinds of directions by a user as drawing 6 explained.

[0048]The key interface 89 is an interface which tells the indication signal from the manual operation buttons 17a-17i to CPU84.

[0049]The printing controller 91 supplies the signal for prints, and a print control signal to the print heads 90, such as a thermal head, under control of CPU84.

[0050]The battery controller 93 is a required thing which carries out an electric power supply and which gives both the residue information on the battery 92 to CPU84 from the battery 92 to CPU84.

[0051]About the above-mentioned liquid crystal display 16, the segment notation which displays a character and a number as shown in drawing 7, and a mark using a display segment is used. The liquid crystal controller 87 generates a segment driving signal based on the directions from CPU84, and controls lighting / un-switching on on the light of each display segment of the liquid crystal display 16.

[0052]Print operation is explained briefly here. To the display surface of the liquid crystal display 16, of the recording media with the state where card display SM is made, or the card changeover button 17g for example, where SM is chosen, If the print button 17b is pushed as a print mode with the printing mode button 17c after choosing a standard print and then specifying printing top watch and printing number of sheets, the date printing, etc. in order to perform printing from SM, After CPU84 reads data into the memory 85 from SM71, it sends this data to the printing controller 91, controls the print head 90, and goes into print operation. Only the printing number of sheets as which the picture of the top watch specified as the record paper which is not illustrated at the time of a print was specified is printed out. If the date printing is specified at this time, the date at the time of a print will also be printed with a picture. The display which shows under printing to the liquid crystal display 16, and a battery residual quantity display are made during the print.

[0053]Next, the display action of the kind of recording medium in the liquid crystal display 16 of the printer 80 of drawing 1 is explained. A printer body is equipped with the battery 40, or AC adapter 53 is connected, current supply has become possible, it is equipped with the ink ribbon cassette 20 and the sheet paper cassette 30, and printing and feeding are enabled. Subsequent explanation is also the same.

[0054]In the printer 80 at the time of a power turn, various kinds of setting out of the liquid crystal display 16 will be in an initialization state.

[0055]When equipped with neither of the memory cards 71-73 at the time of a power turn, CPU84 detects this, and it is drawing 2 (a). A displaying condition as shown is used. Thus, when you have no memory card, a memory card display is not made.

[0056]When equipped with SM71 at the time of a power turn, CPU84 detects this and is drawing 2 (a). Drawing 2 (b) after displaying a state without the same memory card A file is read from SM71, the kind "SM" of card is indicated by a segment so that it may be shown, and the last top watch of the data saved simultaneously SM71 is displayed. Drawing 2 (a) Although the mark currently displayed on the lower left corner of the display surface shows standard print marks, this mark is generated by controlling six square segments (what it was black and was smeared away) in the index print marks of the lower left corner of the display surface of drawing 7 un-switching on the light.

[0057]When equipped with MS72 at the time of a power turn, CPU84 detects this and is drawing 2 (a). Drawing 2 (c) after displaying a state without the same memory card A file is read from MS72, the kind "MS" of card is indicated by a segment so that it may be shown, and the last top watch of the data saved simultaneously MS72 is displayed.

[0058]When equipped with CF73 at the time of a power turn, CPU84 detects this and is drawing 2 (a). After displaying a state without the same memory card, as shown in drawing 2 (d), a file is read from CF73, the kind "CF" of card is indicated by a segment, and the last top watch of the data saved simultaneously CF73 is displayed.

[0059]When SM, CF, and all the MSs are inserted at the time of a power turn, priority is given to SM, for example.

[0060]Next, when either of the memory cards 71-73 is inserted to the printer 80 after a power turn, CPU84 is controlled to detect the memory card with which it was equipped and to switch automatically the memory card display of the liquid crystal display 16. This is explained below.

[0061]Drawing 2 (a) If it equips with SM71 to a displaying condition without the same memory card, CPU84 detects this and is drawing 3 (a). After reading a file from the memory card with which it was equipped, indicating the kind "SM" of card by a segment so that it may be shown, and completing reading, the last top watch of the photography top currently recorded on the memory card with which it was equipped is also displayed.

[0062]Drawing 2 (a) If it equips with MS72 to a displaying condition without the same memory card, CPU84 detects this and is drawing 3 (b). After reading a file from the memory card with which it equipped, indicating the kind "MS" of card by a segment so that it may be shown, and completing reading, the last top watch of the photography top currently recorded on the memory card with which it was equipped is also displayed.

[0063]Drawing 2 (a) If it equips with CF73 to a displaying condition without the same memory card, CPU84 detects this and is drawing 3 (c). After reading a file from the memory card with which it equipped, indicating the kind "CF" of card by a segment so that it may be shown, and completing reading, the last top watch of the photography top currently recorded on the memory card with which it was equipped is also displayed.

[0064]When other cards are inserted at the time of memory card insertion, the card with which it is equipped previously is displayed preferentially. For this reason, the memory card used by pushing the card changeover button 17g can be chosen. CPU84 is controlled to switch the memory card display of the liquid crystal display 16 corresponding to the memory card which chose in order the memory card which detects this whenever the card changeover button 17g is pushed, and is used like SM->MS->CF, and was chosen simultaneously.

[0065]In simultaneous insertion of a memory card, it is controlled to display the memory card recognized first.

[0066]CPU84 is made into a displaying condition as detected this and shown in drawing 4 when the memory card in which the picture is not recorded is inserted. That is, although a card kind is displayed as "SM", corresponding to a memory card, even if a top watch display will be -000- and the print button 17b is operated here, CPU84 does not receive print instruction.

[0067]The segment for five characters of "SMSCF" is prepared for expressing the kind of memory card which is a recording medium, as drawing 2 - drawing 4 described above, If the light is switched on with "SM", "SmartMedia" will be turned on with "MS" and a "memory stick" will be turned on with "CF", the symbol display of the "CompactFlash" can be carried out, respectively. The display for six characters can be performed in the segment for five characters.

[0068]Next, the display action in the case of specifying the date display style at the time of a print is explained. At the initial state at the time of a power turn, it is drawing 5 (a). It is shown in a displaying condition without the date so that it may be shown. Then, the date button 17f is pushed and it is controlled to be able to choose the date display. It controls for CPU84 to detect this, whenever it pushes the date button 17f once, and to switch the display style of the date.

[0069]Drawing 5 (a) From a state without the date, if the date button 17f is pushed once, CPU84 detects this and is drawing 5 (b). The "YMD" (it is equivalent to a -date-) which indicates the date printing display gestalt under it to be the date printing designation mark to the upper right on a display surface so that it may be shown is indicated by a segment, "MD Y" (equivalent to a -days-and-months year-.) CPU84 indicates the date printing display gestalt to be to the bottom of it with the date printing designation mark as shown in drawing 5 (c) when the date button 17f is pushed once again a space portion -- the portion unswitched on the light -- it is -- if it indicates by a segment and the date button 17f is pushed further once again -- CPU84 -- drawing 5 (d) The "DMY" (it is equivalent to a -lunisolar year-) which shows the date printing display gestalt to the bottom of it with the date printing designation mark so that it may be shown is indicated by a segment.

[0070]As drawing 5 described above, the segment for five characters of "YMDMY" is prepared for expressing the display style of the date, If the light is switched on with "YMD", the display style of a "date" will be turned on with "MD Y" and the display style of a "days-and-months year" will be turned on with "DMY", the symbol display of the display style of a "lunisolar year" can be carried out, respectively. The display for nine characters can be performed in the segment for five characters.

[0071]When the display style of the date at the time of a print is indicated by a character string with "MD Y" at the time of a print, The date, for example, "4.30.2000", or "4-30-2000" (mind on April 30, 2000) corresponding to "MD Y" can be printed with a picture on a print sheet.

[0072]In an above embodiment, although the display in a printer was explained, this invention can be widely applied to the display which performs a segment display, without being limited to this.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]The block diagram showing the printer to which the display of the 1 embodiment of this invention is applied.
[Drawing 2]The figure showing the display example which indicates the kind of recording medium when one [a power supply] by a segment.
[Drawing 3]The figure showing the display example which indicates the kind of recording medium by a segment based on card selection (wearing).
[Drawing 4]The figure showing a display example in case there is no data recording on the card with which it was equipped.
[Drawing 5]The figure showing the display example which indicates the date display style by a segment.
[Drawing 6]The perspective view showing the appearance of a printer.
[Drawing 7]The figure showing all the printable characters and distinguishing marks which can be displayed on the liquid crystal display in drawing 6.
[Description of Notations]
16 -- Liquid crystal display (displaying means)
17a-17i -- Manual operation button (a directing means or selecting means)
71 -- SM
72 -- MS
73 -- CF
80 -- Printer
81 -- SM interface
82 -- MS interface
83 -- CF interface
84 -- CPU (a detection means or control means)

85 -- Memory (memory measure)
87 -- Liquid crystal controller (display control means)
89 -- Key interface
90 -- Print head
91 -- Printing controller
92 -- Battery
93 -- Battery controller

[Translation done.]

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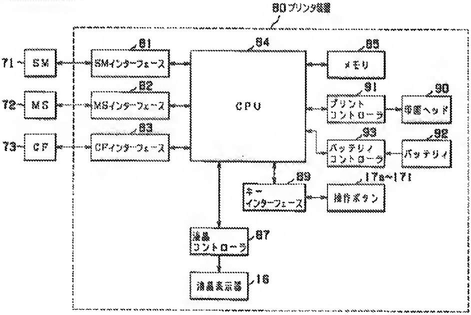
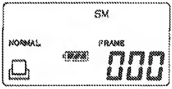
3.In the drawings, any words are not translated.

DRAWINGS

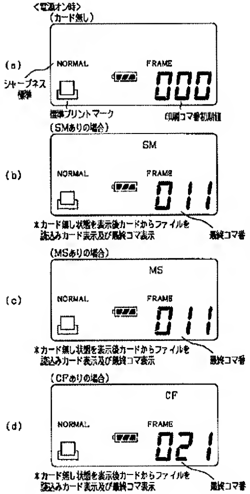
[Drawing 1]


80 プリンタ装置
81
84
85
71
SM
SMインターフェース
CPU
メモリ
91
90
72
MS
MSインターフェース
プリント コントローラ
印画ヘッド
83
93
92
73
CF
CFインターフェース
バッテリィ コントローラ
バッテリィ
89
17a~17f
キー インターフェース
操作ボタン
液晶 コントローラ
87
液晶表示器
16

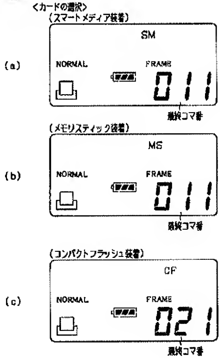
[Drawing 4]


SM
NORMAL
FRAME
000

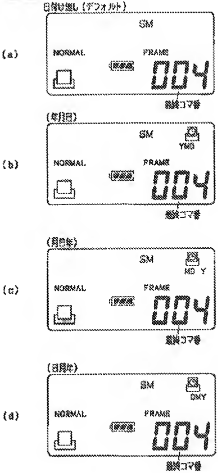
[Drawing 2]


<電源オン時>
（カード無し）
(a)
シャープネス標準
NORMAL
FRAME
000
標準プリントマーク
印刷コマ番初期値
（SMありの場合）
(b)
SM
NORMAL
FRAME
011
*カード無し状態を表示後カードからファイルを読込みカード表示及び最終コマ表示
最終コマ番
（MSありの場合）
(c)
MS
NORMAL
FRAME
011
*カード無し状態を表示後カードからファイルを読込みカード表示及び最終コマ表示
最終コマ番
（CFありの場合）
(d)
CF
NORMAL
FRAME
021
*カード無し状態を表示後カードからファイルを読込みカード表示及び最終コマ表示
最終コマ番

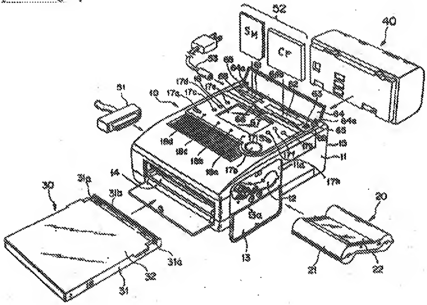
[Drawing 3]


<カードの選択>
（スマートメディア装着）
(a)
SM
NORMAL
FRAME
011
最終コマ番
（メモリスティック装着）
(b)
MS
NORMAL
FRAME
011
最終コマ番
（コンパクトフラッシュ装着）
(c)
CF
NORMAL
FRAME
021
最終コマ番

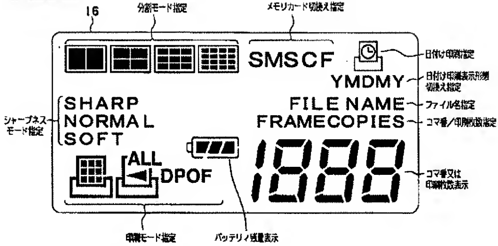
[Drawing 5]


日付け無し（デフォルト）
(a)
SM
NORMAL
FRAME
004
最終コマ番
(年月日)
(b)
SM
YMD
NORMAL
FRAME
004
最終コマ番
(月日年)
(c)
SM
MD Y
NORMAL
FRAME
004
最終コマ番
(日月年)
(d)
SM
DMY
NORMAL
FRAME
004
最終コマ番

[Drawing 6]


52
40
SM
CF
33
31
10
17a
17c
17d
17e
64a
62
63
64
64a
65
66
67
18a
18d
18b
18c
17b
171
11a
11
15
17f
14
30
31a
31b
12
13a
13
20
21
22
31d
32
31

[Drawing 7]


16
分割モード指定
メモリカード切換え指定
SMSCF
日付け印刷指定
YMDMY
日付け印刷表示形態切換え指定
FILE NAME
ファイル名指定
FRAMECOPIES
コマ番/印刷枚数指定
シャープネスモード指定
SHARP
NORMAL
SOFT
ALL
DPOF
1888
コマ番又は印刷枚数表示
印刷モード指定
バッテリィ残量表示

[Translation done.]